MOBILE TERMINAL HAVING MULTIPLE TOUCH PANELS AND OPERATION METHOD FOR THE SAME

PRIORITY

[0001] This application claims the benefit under 35 U.S.C. §119(a) of a Korean patent application filed on Dec. 10, 2009 in the Korean Intellectual Property Office and assigned Serial No. 10-2009-0122316, the entire disclosure of which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a mobile terminal having multiple touch panels. More particularly, the present invention relates to a mobile terminal that controls multiple touch panels using a single touch controller and to an operation method for the same.

[0004] 2. Description of the Related Art

[0005] With rapid popularization, mobile terminals have become a necessity of modern life. In particular, many users favor touch-enabled mobile terminals employing touch sensor technology. Recently, mobile terminals having a double-sided touch capability have been developed to extend the touch-based user interface.

[0006] A mobile terminal having a double-sided touch capability includes one touch panel at the front and another touch panel at the back. When the user performs a touch action, the mobile terminal recognizes a user input by sensing a touch point on the touch panels at the front and back. In such a touch sensing process, a touch controller is employed for touch panel control. The mobile terminal may require two touch controllers to control the two touch panels. Use of two touch panels may extend the functionality of the mobile terminal in terms of user interface features. However, having to provide two touch controllers increases manufacturing costs of the mobile terminal In addition, as the central processing unit of the mobile terminal has to control the two touch controllers, a processing burden thereof is increased.

SUMMARY OF THE INVENTION

[0007] An aspect of the present invention is to address at least the above-mentioned problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of the present invention is to provide a mobile terminal having multiple touch panels that can be manufactured at low cost.

[0008] Another aspect of the present invention is to provide a mobile terminal having multiple touch panels that can reduce data processing burden of the central processing unit.

[0009] Another aspect of the present invention is to provide a touch panel operating method for the mobile terminal having multiple touch panels.

[0010] In accordance with an exemplary embodiment of the present invention, a mobile terminal is provided. The terminal includes a first touch panel disposed at one side of the mobile terminal and comprising at least one touch sensor, a second touch panel disposed at another side of the mobile terminal and comprising at least one touch sensor, and a touch controller having a plurality of ports, wherein at least one of the plurality of ports is connected to a touch sensor in the first touch panel and at least one of the plurality of ports other than the port connected to the first touch panel is connected to a touch sensor in the second touch panel, and wherein the touch controller conducts scanning on the first touch panel and second touch panel to recognize a touch on the first touch panel or second touch panel.

[0011] In accordance with another exemplary embodiment of the present invention, a touch panel operating method for a mobile terminal having first and second touch panels is provided. The method includes receiving a command for executing an application in the mobile terminal, identifying pattern information on a sensor arrangement pattern corresponding to the application to be executed, changing a sensor arrangement pattern of at least one of the first touch panel and the second touch panel according to the identified pattern information, and conducting scanning on the first touch panel and second touch panel in a specific sequence according to the changed sensor arrangement pattern.

[0012] According to an aspect of the present invention, a mobile terminal is provided. The mobile terminal includes a first touch panel having at least one touch sensor, a second touch panel having at least one touch sensor, a single touch controller for controlling the first touch panel and the second touch panel and including a plurality of ports connected to at least one of the first touch panel and the second touch panel, wherein a first group of the plurality of ports is connected to at least one of the touch sensor(s) of the first touch panel and a second group of the plurality of ports is connected to at least one of the touch sensor(s) of the second panel, and wherein the first group and the second group each include at least one port, and no port in the first group is included in the second group.

[0013] According to an aspect of the present invention, it is possible to manufacture mobile terminals having multiple touch panels at low cost. It is also possible to reduce processing load of the central processing unit when operating multiple touch panels.

[0014] Other aspects, advantages, and salient features of the invention will become apparent to those skilled in the art from the following detailed description, which, taken in conjunction with the annexed drawings, discloses exemplary embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The above and other aspects, features, and advantages of certain exemplary embodiments of the present invention will be more apparent from the following description taken in conjunction with the accompanying drawings, in which:

[0016] FIG. **1** illustrates the front and back of a mobile terminal having two touch panels according to an exemplary embodiment of the present invention;

[0017] FIG. **2**A is a block diagram of a mobile terminal having two touch panels according to an exemplary embodiment of the present invention;

[0018] FIG. **2**B illustrates the structure of a touch panel according to an exemplary embodiment of the present invention;

[0019] FIG. **3**A illustrates the structure of a control unit together with first and second touch panels according to an exemplary embodiment of the present invention;

[0020] FIG. **3**B illustrates a sensor arrangement pattern for the first and second touch panels together with a touch controller according to an exemplary embodiment of the present invention;